the astrogram

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SEPT. 14, 1973

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

STUDENT SPIDER EXPERT . . . Ms. Judith Miles of Lexington, Mass. discusses her proposed Skylab experiment with Henry Floyd of Marshall Space Flight Center. Her experiment "Web Formation of Zero Gravity", led to the carrying of two lady spiders -- Arabella and Anita -- on Skylab 3, the second manned mission.

Pill aids medical research

A little reminiscent of the movie "Fantastic Voyage", a small radio transmitter pill has been developed which, when swallowed, can monitor deep body temperature by means of an FM receiver and associated electronics located as far as six feet away.

Designed at Ames, the pill has been used to monitor subjects in an environment simulating travel in a spacecraft. The advantage of the device is that it allows monitoring of body temperature over the entire 24-hour period on a day-by-day basis, a job difficult or impossible to accomplish by means presently available or presently in use.

The pill, about the size of a vitamin capsule, can be swallowed and is coated so that it will not dissolve while passing through the digestive tract. That trip usually takes a minimum of two days, or can be as long as one week if a low residue diet is utilized. Its distinct advantage is that it requires no wires to be attached to the body surface, nor does it require any instrumentation to be inserted, as would occur with the use of an oral or rectal thermometer, or the use of a thermistor probe.

Since the pill is small in size and uses a very small battery, it does not

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State and NASA appraise disasters

Natural and man-made disasters in California and how to give State planning officials timely estimates of damage is the basis for an innovative agreement between the State of California and Ames Research Center.

The agreement is part of a pilot program underway at NASA-Ames to develop disaster assessment systems which could then be used by any regional or Federal agency. Disasters in California will provide actual cases for evaluating the usefullness of proposed damage-assessment systems while the systems are under development.

Lt. Governor Ed Reinecke and Ames Director Dr. Hans Mark have concluded a formal agreement calling on the space agency's experience in using aircraft with remote sensing instruments for research to aid the California Office of Emergency Services (OES) in developing a system for rapid evaluation of emergency situations. In time of emergency these evaluations are urgently needed by State officials to plan the best response for preserving life and property.

The agreement covers disasters such as fire, flood, earthquake, landslide, oil or chemical spill, air pollution, peacetime radiological accident, tsunami (seismic sea wave) and volcano eruption.

In a disaster situation, the plan

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Birthday celebration

Research facilities at Ames will be open to the public September 29. The event, first of its kind in more than 15 years, marks the fifteenth year since the Space Act of 1958 created the National Aeronautics and Space Administration and established a National Space Program.

The public is invited to Ames, the largest NASA aeronautics and space research facility on the West Coast, between 10:00 a.m. and 4:00 p.m. on Saturday the 29th. Employees are urged to attend and bring family and friends. Open for inspection will be the western world's largest wind tunnel, an 11-foot transonic wind tunnel and its sound containment shield now under construction, the research aircraft hanger with advanced and special purpose aircraft on display, and a large computer-driven flight simulator.

Guests should follow Bayshore Freeway exits to Ames and Moffett Field but should turn left off Moffett Boulevard to the NASA Gate 18 instead of entering the Main Gate of the Naval Air Station. The tour of Ames is unguided and guests can follow directional signs to the facilities and parking. The Ames Cafeteria will be open for refreshments.

On-the-job training at Ames

Ames and San Jose State University (SJSU) are collaborating to initiate a new graduate studies program in mass communications at SJSU to give specialized training for journalism school students in reporting on science and technology.

Under this graduate program, the initial candidate selected will receive both classroom instruction at the university and on-the-job training in the Public Affairs Office at Ames, culminating in a Master of Science degree in mass communications with a science-writing emphasis.

This interchange program between NASA and SJSU is one of many agreements sponsored by the NASA-Ames University Consortium. Formed in 1967, the consortium is a collaboration between Ames and some 32 universities across the United States. This collaboration enables reciprocal use by both the universities and Ames of services, equipment, personnel and facilities.

Directed by Dr. Dennis Brown, chairman of the Department of Journalism and Advertising at SJSU, and Stan Miller, Public Affairs Officer at Ames, the program will also provide a series of lectures by prominent scientists and public affairs officials.

Wildland fire management study

Twenty faculty fellows of the summer-long workshop on systems engineering design sponsored jointly by NASA and the American Society for Engineering Education (ASEE) presented their interdisciplinary study results of wildland fire management at Ames on August 28.

The purpose of the NASA-financed summer workshop – which is run by Ames and Stanford University – is to train faculty for and to promote such interdisciplinary projects in schools throughout the United States.

The faculty fellows came from 16 different schools in 9 states. They represented the fields of mechanical–, electrical–, industrial–, aeronautical–, and chemical engineering, plus law, business economics, and computer science.

Though the results of the Study will be published as a report to both NASA and the federal, State and local agencies concerned with wildland fire control, some general conclusions can be briefly presented here.

The Study was broken into two(2) major areas. The first area of concentra-

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Galileo II selected

A Convair 990 aircraft has been selected as a flying scientific laboratory to replace a sister aircraft, the "Galileo". Negotiations between Ames and the California A rmotive Corporation of Burbank have led to an initial $800,000 contract calling for delivery of the aircraft.

The replacement aircraft has been designated "Galileo II" for the eleven NASA crewmen and experimenters who died aboard the first "Galileo" last April.

Several missions for science and Earth resources studies are being considered for the aircraft, pending completion of necessary modifications. The first would be a scientific mission planned to study the comet Kohoutek in December or January. Another is to play a major role in a multi-nation effort to understand how the atmosphere behaves and improve world-wide prediction. Participation in the first phase of the effort, called the Atlantic Tropical Experiment, will start in June 1974. Dakar, Senegal, in West Africa will be the base of flight operations for "Galileo II" on this mission.

Ames' '73 Summer Aid Program ends

The largest summer program ever sponsored by Ames ended September 4 when the last summer aid checked out through the Ames Badge Office. 120 students ranging in age from 16 to 22 participated in the Summer Aid Program directed by Willie L. White, Jr., Chief, Equal Opportunity Programs Office.

The students were selected from school districts in San Mateo and Santa Clara counties and were placed in various work positions to gain responsible job experience and to earn money. Their work at Ames began June 18.

Throughout the summer student aids could be found performing a variety of jobs ranging from sanding and painting in the model shop to analyzing rocket fuels. Their enthusiasm for their work at Ames and for the Summer Aid Program was quite positive and in many cases resulted in renewed interest in seeking higher education.

JILL CHIKUSUYE . . . returned this summer to work as a summer aid in the Training and Special Programs Branch. Last summer she assisted the High Enthalpy Research Branch as a math aia.

Summer aids and their job sites included (top row, l. to r.): Ron Darange, Reproduction Services Branch; Marty Presley, Physical Gas-Dynamics Branch, (botton row) Christine Gomez, Flight Systems Research Division; and Martha Anaya, Physical Gas-Dynamics Branch.

MARIA RESENDES (l.) AND MARIA ROSALES . . . worked as summer aids and recently received acceptance on the Worker Trainee Opportunities Program from Robert L. Pike, Chief of Personnel Division and Willie L. White, Jr. (r.), Chief of Equal Opportunities Programs.

With the experience gained at Ames some students were able to qualify for jobs with other companies or contractors; two were accepted on the Worker Trainee Opportunities Program at Ames; and between 50 and 60 students will remain in the present Stay-In School Program.

Approximately 90 Ames employees participated as supervisors for the students in the program. Their function, according to White, was "to instill in the young people the importance of being responsible, performing assigned functions efficiently, being on time and forming good work habits."

In addition to the supervisors, the students were guided and counseled by Ava Johnson, Ames EEO Specialist; Charlie Miller, Santa Clara County Board of Education; Sandra Martinez and Linda Parise, college students.

A "Summer Aids Award Ceremony" was presented on August 23 to recognize the outstanding students and supervisors in the program. C.A. Syvertson, Deputy Director presented the Outstanding Achievement Award with Special Merit ($25 U.S. Savings Bonds) to Robert Fernandez, Cecilia Freitas, Michael Mackie and Guadalupe Rodriguez. Sixteen Outstanding Achievement Awards with Merit were given (records) by White; and Robert L. Pike, Chief of Personnel Division, presented certificates to those receiving Outstanding Achievement Awards. Many supervisors were also given awards.

ANNOUNCER JILL CHIKUSUYE AND AMES DEPTY DIRECTOR, C. A. SYVERTSON . . present Bob Fernandez, a summer aid in the Airborne Science Office, an Outstanding Achievement Award with Special Merit.

EDITH LAZZERONI . . . ASM, receives a supervisor's award presented by Willie L. White Jr., Chief of Equal Opportunities Programs Office as summer aid Jill Chikusuye (seated) looks on.

astrogram

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Editor . . . . . Meredith Moore
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

Wildland fire management study

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tion was devoted to the potential use and cost/effectiveness of various prevention and presuppression activities, most of which have been considered before by others. It was concluded that wildland fire people have been aware of many things that should be done to alleviate the wildland fire problem, but have not been able to implement them on a full-scale basis. The Study's treatment of fuel management and fuel break systems, zoning, insurance building codes, entry and use control, and penalties should provide the support needed to effect a sound implementation program.

The Study proceeds to suggest satellite characteristics, sensor characteristics. discrimination algorithms, data communication techniques, data processing requirements, display characteristics and costs in achieving an integrated wildland fire information system. A suppression doctrine is suggested that is premised on the information and decision generating capabilities achieved. A single unified fire-fighting organization is suggested as the operational force to suppress wildfires, and recommendations regarding new hardware for this control group, deployed as modular TASK FORCES, are made. A new concept for the logistic support of the deployed TASK FORCE is suggested.

For further information contact Dr. Billingham, Chief of Biotechnology Division.

Certified auditors

Michio Nakajima, Regional Manager, James F. Murphy and Gordon Mar, both Senior Auditors, of the NASA Management Audit Office located at Ames, recently received their notices of award and authorization to use the title Certified Internal Auditor (CIA). The CIA designation recognizes the professional status of the internal auditor and is available to those auditors who meet the stringent requirements of the certification provisions established by the Institute of Internal Auditors.

WALLY SMITH AND LINDA ELY . . . of Lutcher Special Services are pictured in the Duty Office. All persons working in the Duty Office hold a radio operator's license.

Ames' extensive alarm system

Elaborate safety precautions in the form of a high capacity alarm system are being implemented 24 hours a day, 7 days a week for protection of Ames personnel and property. The unit is a combination of two totally integrated alarm systems: a fire alarm system capable of 99,999 alarms and a maintenance/security alarm system capable of 1,000 alarms. Every building is connected to the integrated system.

The Ames Duty Office oversees the activity of the elaborate alarm system. Any alarm, triggered manually or automatically, will immediately be detected by the equipment in the Duty Office staffed by contractor Lutcher Special Services. The Duty Office personnel will, upon receipt, contact the appropriate people to solve the fire or maintenance problem.

Automatically or telephonically detected fires will cause an activation of a bell system for evacuation.

The system is capable of monitoring air conditioners, furnaces, sump pumps, power failure, radiation, combustible gas, fluctuation in electrical current, etc. The equipment is also capable of handling high and low pressure of water, air or other gas sensors connected to experimental research apparatus for given perimeters established by the researchers.

The Duty Office handles an average of 100 alarms per month. The daily log normally reports about 200 activities performed within a 24 hour period by the staff; the log includes an account of activity minute by minute and is submitted to Ames Security Branch.

Vocation and avocation in harmony

SUE NORMAN

Editor's Note: This is the third of a series on some of the professions of women at Ames.

Eight years ago as a graduating senior at the University of Michigan and a female mathematics major interviewing for a job, Sue Norman met with some difficulty obtaining a job until she talked with representatives from Ames. It seemed that 60 to 70 per cent of the large corporations looking for straight math majors shied away from female mathematicians. But not Ames!

Ames offered Sue a position in Mission Analysis where she would be working on future space missions, trajectory analysis, etc. And Ames offered the Michigan-born graduate a chance to earn her Masters Degree at Stanford University by working through the Training and Special Programs Branch.

Though industry has modified its attitude toward women professionals Sue is more than happy that she came to work at Ames. As an aerospace engineer in the Aeronautical Systems Branch of the Systems Studies Division Sue forecasts future aircraft demand.

Sue's job often includes traveling. She has recently returned from a summer workshop in Aspen, Colorado on "Transportation to Low and Medium Density Areas." The workshop drew people from industry, government and education on a world wide basis. Canadian Officials were present as well as marketing personnel for the Russian Yak 40 from North American Rockwell. Such workshops allow researchers to keep abreast of thoughts, trends and needs of the industry both in the U.S. and abroad.

Traveling is a special hobby of Sue's. It is an aspect of her personal life that has always fit into her professional life. She and her husband spent their summer vacation this year in South America where they traveled extensively through Ecquador and Peru. Sue says, "I purposely utilized the local transportation to gain insight into the airplane, bus and train systems of foreign countries. South American air transportation is quite expensive yet it is the most suited to the terrain (remember the Andes Mountains!). People can travel hundreds of miles by train for just a few pennies; however it will take many hours (perhaps days) to reach their destination.

Besides traveling, Sue enjoys hiking and backpacking in the Sierras, the Trinities and the Big Sur area; she enjoys snow skiing and is currently Vice President of the Ames Ski Club; she also has her private pilot's license, is part-owner of a Cherokee light aircraft and is treasurer of the local chapter of the international women's pilots club called The 99's Club.

State and NASA

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allows OES to request NASA to provide airborne coverage of the affected area. Depending on the type of disaster involved, Ames Research Center will provide material such as high altitude multispectral photography, thermal infrared imagery and radiometric surveys, using techniques being developed by Ames for earth resources research.

To aid the State in data interpretation, Ames will also provide technical assistance and training.

Dr. Mark emphasized that the agreement covers a developmental program only.

"NASA is primarily a research and development agency, not an operational service agency. As such, we will be working out a damage-assessment system using California as a test site."

Pill aids research

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have the power to transmit signals for long distances and is most applicable to situations where the subject is in a confined environmental situation, such as a hospital. If a retransmitter is utilized, which may be the size of a cigarette lighter and carried in one's shirt or pants pocket, such limitations can be overcome.

In normal operating conditions, the antenna is usually placed in the bed or utilizes the waist-band or belt of the subject. The pill transmits continually and has a battery life-span of 52-76 days.

The pill, although old in concept, has only recently been technologically practical because of the complex circuitry and larger power source necessary with previous designs. This particular pill is one of many developed for research and is a compromise between the first pills which were large and inaccurate, and the later ones which were complex and expensive.

The greatest problem was in developing a battery small enough for the vitamin-sized capsule and powerful enough to transmit accurately.

Speakers Bureau

*Charles, Bob, Nysmith (Chief, Space Shuttle Office) will present an overview of the Space Shuttle program to the North Oakland Rotary when it meets on September 17 in Berkeley. As some of you may know, Bob will be leaving Ames in October to go to NASA Headquarters for an extended assignment. He has been an extremely competent and very willing speaker for the Speakers Bureau. Bob, you'll be missed!

*Omitted from the story of Ames' participation in the Santa Clara County Fair's Industrial Participation Program was the name of Garth Hull (Educational Programs Officer). Mr. Hull has been Ames' senior representative on that committee for the last several years. He spent one day this year at the Fair in the exhibit booth, talking to fair attendees about NASA's interest in education.

*Mr. Hull will address the San Jose Shrine Club on September 20. He will be discussing NASA's exploration of the planets.

*Edward Fontes (Chemical Research Projects Office) will discuss fire retardant materials at the meeting of the Engineering Technicians Association at the Naval Rework Facility, Alameda Naval Air Station, on September 19.

*Thomas Fryer (Electronic Instrument Development Branch) will describe some of the medical spinoff benefits of the space program to Chapter No. 32 of the SIRs (Sons in Retirement) in Santa Clara on September 19.

*Guy Ferry (Planetary Science and Applications Branch) will bring the Livermore Lions Club up-to-date on Skylab, at the club's meeting on September 27.

Photography Club

There is currently a photography display being exhibited in the Library (Building 203). The subject matter is "Outdoor Scenes at Ames" and was the topic for the Photography Club's latest competition.

Arizona photographed by Ames aircraft

The entire state of Arizona is being photographed by Ames Earth Resources Survey Aircraft in an experiment designed to further test man's capability of remotely sensing land characteristics from the air and space.

In the Arizona Land Use Experiment. which is part of a three-way agreement among NASA, the Department of the Interior and the state of Arizona, photographs taken by the aircraft are being utilized to provide a series of 1800 detailed orthophotoquads covering the state.

The information gathered from the photographs will be used by a number of Arizona state agencies. The Arizona Highway Department is using the photographic data to update its county map series, as well as to analyze areas of high accident occurrence.

The Arizona Game and Fish Department plans to develop a land use and vegetation cover map for use in wildlife management. One aspect of this project is the monitoring of specific mountain lions' movements within their natural habitat area by the use of photography in conjunction with radio tracking.

The photographs are being used by the Arizona Land Department to study particular land areas which require decisions on lease applications or other proposed uses. In addition, a new system has been developed for displaying state land its true location and scale.

Arizona's Department of Transportation has developed an Arizona Bicycle and Footpath Study by using the photographs. Development of a State Airport Systems Plan is also underway by the Department of Aeronautics.

Project Managers for this experimental program are: Martin A. Knutson, NASA-Ames; Carl C. Winikka, Arizona Resources Information System Project, and Herbert H. Schumann, U.S. Geological Survey.

RECEIVING CERTIFICATES . . . on the Foothill Community College District Work Experience Program are (front row, l. to r.) Paul Swartz, Gene Schoenberger, Edward Keegen and James Freel; Coordinators (back row) are Charles Middaugh, Andy Bogart, Loran Bright and Dr. Nathan Boortz.

Happenings!

The 5th Annual Ski Show sponsored by the Ames Ski Club and the Moffett Field Special Services will be held Saturday, September 15 at 11 a.m. to 4 p.m. in the Ames Auditorium. The Ski Show will include a Ski wear fashion show, wine tasting, booth presentations by Far West Ski Association, Mogul Ski Club, National Ski Patrol and many others. For further information, contact Linda Cox, ext. 5587.

DeAnza College will be presenting its ethnics course, "Racial and Cultural Minorities of the U.S." on the Naval Air Station. This course is an interdisciplinary study of varied racial and cultural aspects of American society; the role of the minority groups; the nature of prejudice and its effect upon human behavior. It is a 4 unit course.

The course will commence on 18 September and end on 5 December. The class will meet twice weekly, on Tuesday and Wednesdays. 1430-1610, in Room 210, Bldg. 25.

For more information, interested Ames employees may contact Berniece Nourse, Civilian Training Office, ext. 5165.

The Western Electronic Show and Convention (WESCON) is being held this week through Friday, September 14, in San Francisco's Brooks Hall and the Civic Auditorium (all part of the Civic Center complex). Ames' participation included John Dimeff's (Assistant Director-Advanced Instrumentation, Code R) papay entitled "Medical Products Spin-Off – Present and Future" on Wednesday, September 12, under Session 13 "Needs and Trends in Medical Electronics – 1973."

AIAA will celebrate the 40th anniversary of Moffett Field and the USS Macon on Thursday, Sept. 20 in the Commissioned Officers Club at the Naval Air Station. Two tours and a dinner are offered. Advance reservations are required. Call Joan at Ames, 6440 on or before Monday, Sept. 17.

Thank You

"Dear Friends,

Many thanks to all those who attended my going away luncheon and to those who participated but could not attend. Those who know we know that the one liter measuring cup will be well used! And the car cover is a perfect fit on my Porsche.

Again thanks to all. As I said, the hardest part of going is leaving so many good friends. I hope my new career will bring me to Ames often.

Dick Petersen"

Want Ads

Transportation

FOR SALE:

70 Honda 350 SL Special, perf. cond., ball bearing cam eng., Bal. to 1.2 gram tuned, elec. starter, S. Yew, 322-6557.

1961 Pontiac, $100. W. E. Pearson 354-8915, ext. 6193.

'66 Pontiac Lemans A/T, P/S, P/B, Positraction, R/H, 2 Dr. H/T, Vinyl Top, $550. 253-4106.

'66 Pontiac GTO, H/T, A/T, P/S, P/B, $700. 493-5909.

Housing

House for rent, 2 bedroom, downtown Palo Alto, $200/mo. 322-9289.

For rent: Old 2 bedroom apt downtown Palo Alto, $170/mo., 322-9289.

Miscellaneous

FOR SALE:

Laboratory Oscilliscope; Heathkit 01A, $50, 245-2881.

Tape deck Revox A77, new $800, sell for $550. Two EV-16 speakers, new $400, sell for $250. Harry, 368-5655.

Sears electric sewing machine. $40.00. 248-7634.

Boys or girls 20" bike w/training wheel. $12, 321-1858.

Agfa camera with case, exc. cond; very good results, $15, 321-1858.

Matching color twin bed spreads, hardly used, both for $20, 321-1858.

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2 Ansen Sprint 14 x 7 mag wheels with tires, $50/offer, 948-5968.

New 8 track car stereo, w/quick-release mounting – 12VDC Model. Use w/home adapter, "Craig", 3130. S. Yem, 322-6557.

Fremont Hills Country Club membership. 948-8187.

Stereo reel to reel tape recorder , mono record, $75. Greg, 5101.

FREE cute female black cat. 18 wks. Shots. Accessories. Judith Call 296-3659/ 5726

WANTED:

Car Pool Needed: Return ride home everyday at 4:30; vicinity Saratoga Ave & Payne Ave.; S. Galarneau, 5091.

1967 Mustang shop manual, 948-5968

FOUND:

A watch (you describe) outside Bldg. 202 on the west side. Contact the Astrogram Editor, 5422.

Anniversay Issue

the astrogram

VOLUME XV
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SEPT. 28, 1973

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

15th Anniversary honored locally

Local industry, chambers of commerce and rotaries have gathered together to commend and help Ames celebrate NASA's 15th birthday. The week of October 1-5 has been set aside as NASA WEEK and many special activities are planned.

Those involved in honoring and sponsoring NASA WEEK include 157 local companies who have had contracts with NASA-Ames through the past 15 years; the Sunnyvale, Mountain View and San Jose Chambers of Commerce; and the San Jose Rotary Club.

To kick off the week of October 1 the San Jose Mercury will publish a special "tabloid" section on Sunday, September 30 in honor of NASA.

Exhibit will be on display during NASA WEEK. The exhibits will appear at Eastridge in San Jose and Mayfield Mall in Mountain View. All exhibits will be space oriented and will be set-up by both industry and Ames.

On Wednesday, October 3, the Skylab II astronauts (Charles "Pete" Conrad, Jr., Commander; Joseph P. Kerwin, Science Pilot; and Paul J. Weitz, Pilot) will join the anniversary celebration for a luncheon at the San Jose Hyatt House. The official party will include the astronauts, Mrs. Kerwin, Stretch Flanagan and Gene Marionetti from NASA Headquarters Public Affairs Office, and Larry King from Ames Public Affairs Office. The Master of Ceremonies will be Joe Higgins who is the Sheriff on the Dodge TV commercial. Guests of industry will include Ames Deputy Director, C. A. Syvertson, Organizational Directors and their wives, and the Mayor of San Jose. Others invited from Ames are Deputy Directors and Division Chiefs.

Space Act of 1958

Fifteen years ago President Eisenhower signed into law the National Aeronautics and Space Act of 1958. Two months later, on Oct. 1, NASA officially came into being.

Prior to this time, research into rocket technology in the United States was fragmented among the military services and NASA's predecessor the National Advisory Committee for Aeronautics (NACA).

Russia's Sputnik I, launched Oct. 4, 1957, put 184 pounds of scientific instruments into orbit and seriously challenged the United States' reputation for technological superiority. Congratulatory messages had hardly stopped pour-

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Challenging future for Ames on NASA's 15th anniversary

As the National Aeronautics and Space Administration turns 15 this week, Ames looks back on basic contributions to the first Moon landing – and ahead to development of more flexible aircraft, more challenging space flights, and to use of space methods to solve Earth problems.

This week Ames researchers are practicing for man's first encounter with the giant planet Jupiter this December, via the Ames Pioneer 10 spacecraft. They are beginning to apply the world's fastest computer, the Illiac IV, recently acquired by the Center, to problems of flight, now solvable for the first time.

Ames scientists and engineers are testing the Ames-managed system which will be landed on the surface of Mars in 1976, to look for life there.

Other researchers are testing a new Ames "national facility", the 36-inch airborne infrared telescope, mounted in a C-141 aircraft which will observe the giant Kohoutek comet in December. This telescope is by far the largest and most effective

instrument of its kind. At 40,000 feet, it will be able to see the unexplored segment of the infrared spectrum out to 2,000 microns. This "red light", blocked out on the surface by the Earth's atmosphere, is believed to hold much basic knowledge of the universe. Continuing 30 years of aircraft research, Ames crews are flying the country's first jet short take-off and landing (STOL) experimental aircraft. This is the C-8 Augmentor Wing vehicle, equipped with a landing and control system for STOL operation. By allowing operations from suburban areas and smaller fields, plus reducing aircraft noise, these STOL craft promise solutions to urban crowding and improvements in the country's short-haul transport systems.

Ames Earth Resources Survey aircraft are retrieving large amounts of useful information. Designed to complement the work of Earth satellites, two high altitude survey aircraft acquired 27 months ago have completed more than 450 missions, producing over 150,000 multi-spectral data photographs for investigations in many scientific disciplines. Studies this week include California rice production, Feather River Watershed management, and sampling of high altitude aerosols.

Ames engineers this week are working with the U. S. Forest Service and the California Division of Forestry on further development of a remote automated stations for sensing forest fire conditions and radioing them to the ERTS satellite for transmission to forest management agencies. Costs of one forest fire would pay for a network of hundreds of these inexpensive remote stations.

In casting back over NASA's first 15 years, 1958-1973, Ames' contributions become evident.

Founded in 1940 as the second laboratory of NASA's predecessor agency, the National Advisory Committee for Aeronautics, Ames had already solved a basic problem of space flight before NASA. This was how to get a spacecraft back into the atmosphere after flight into space. Solution was the blunt body concept originated by Harvey Allen, second Ames director.

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Director's message

On October 1, 1958, an Act creating the National Aeronautics and Space Administration became law. It established NASA and transferred the National Advisory Committee for Aeronautics to it as the basis for the new organization. This year marks the fifteenth year of achievement for NASA and for Ames as an essential research component of the agency. To mark this milestone and to help make the Center's important work and facilities more accessible to the community and to Ames personnel and their families, a limited "open house" will be held Saturday, September 29, between 10 a.m. and 4 p.m.

On a self-guiding route beginning at the NASA Gate, visitors will be directed to four facilities which will be staffed to display hardware and work in progress. They are the 40- by 80-Foot Wind Tunnel, the 11-Foot Transonic Wind Tunnel (Unitary N-227A), Main Hangar, and the Flight Simulator for Advanced Aircraft (N-243). For the convenience of the guests, the Cafeteria will serve snacks and refreshments and the ARA Store will be open. At noon, I would like to say a few words to all of you and our guests at an assembly on the flight ramp.

I am sure you have friends and neighbors who may have an interest in our Center, and I encourage you to invite them. Students and teachers may be especially interested and we are, of course, pleased to have them join us.

As I mentioned, the visits to facilities will be unguided. Signs will provide assistance in routing the visitors. In addition, you are invited to make auto tours of other parts of the Center.

Hans Mark

Skylab astronauts back on Earth

The second Skylab crew astronauts Alan Bean, Dr. Owen Garriott and Jack Lousma splashed down on September 25 in the Pacific Ocean at approximately 3:20 p.m. (PDT) after a record-breaking 59 day space flight. Doctors report that they are in excellent physical condition. Scientists believe that the mission will provide material to study and research for the next 5 years.

15 years of Space exploration and beyond

by Dr. James C. Fletcher, NASA Administrator

Because it is so much a part of our lives, perhaps we are not fully aware that we are living in the Space Age.

The United States formally entered the Space Age 15 years ago on Oct. 1 when NASA was established by the National Aeronautics and Space Act of 1958.

This is a remarkable document. It establishes a government research and development agency, NASA, and declares "it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind."

To this end, NASA is charged with developing and improving aircraft and space vehicles and gathering the information for the exploration of the atmosphere and space. The agency also has the responsibility to carry out these ventures in cooperation with other nations and with other agencies of the U. S. Government.

The mandates of the Space Act are open-ended. The completion of any mission, such as landing a man on the Moon, does not end the agency's responsibility. In fact, each new accomplishment opens new goals for research and development and points to new paths to follow "for the benefit of all mankind."

Fifteen years ago the U. S. was caught up in the excitement of Sputnik and the concern that we were falling behind the USSR in technological achievements.

Those early days were devoted largely to scientific satellites and to developing the engineering needed to assure their success. We were learning in those days. In 1959, the first full year of operation of the agency, we had 11 successes and eight failures. In 1972, the last full year of operation, NASA chalked up a perfect record of 18 straight flawless launches.

When President Kennedy announced the decision for manned exploration of the Moon, the agency took a new direction. Much of its energies were turned to this mission, and enormous amounts of scientific data were returned and technology developed.

It is important to note, too, that the Apollo missions, especially the spectacular Apollo 11 which landed the first men on the Moon, captured the imagination of the world and gave Americans new confidence in themselves.

With this confidence came acceptance of the nation's ability to perform in space. This, coupled with pressures from other national priorities, resulted in a reorientation toward developing a comprehensive program for reaping the benefits of space.

DR. JAMES C. FLETCHER . . . emerges from the Flight Simulator for Advanced Aircraft (FSAA) during his visit to Ames June 15.

Benefits have been accruing from the exploration of space throughout the last 145 years.

First, there are the continuing and long term benefits of space science and exploration. These are difficult to define but are nevertheless real. Today we are making practical use of scientific research conducted 30 to 50 years ago. In the same way, we can be sure that 30 to 50 years from now our children will be making practical use of the results of the science and exploration we are doing today. For example, weather patterns on Venus may give us a vital missing link to understanding global weather patterns on Earth.

Second, our work produces direct applications of aeronautical and space technology and systems. These include improvements in civil and military aircraft resulting from our aeronautical research and development, improvements in communications and weather forecasting from the use of satellites, and benefits in many fields that will be obtained through the use of Earth resources satellites.

Third, benefits to the economy result from NASA's program. One study indicates that a dollar invested in research and development returns more than seven dollars to the economic mainstream over an 18-year period. Furthermore, we increase our productivity through advanced technology and thus improve our competitive position with overseas firms.

Finally, there are the technology transfers – non-aerospace applications of aerospace technology – which flow from NASA programs. Many of these indirect benefits occur through the spread of technical information in conferences and meetings of professional and trade associations or through technical reports and publications. Others occur through the NASA Technology Utilization program, specifically designed to encourage the widespread use of NASA technology in all segments of the economy.

In putting space research to work in everyday life, NASA works with many government agencies. The list includes the Department of Agriculture, the Atomic Energy Commission, the Department of Commerce, the Department of Defense, the Environmental Protection Agency, the Government Services Administration, the Department of Health, Education and Welfare, the Department of Housing and Urban Development, the Department of the Interior, the Department of Justice, the Department of State, the Department of Transportation, and the Department of the Treasury.

The work NASA does with these agencies ranges from Earth observations to law enforcement, from improved weather satellites to quieter jet engines.

In the field of international cooperation NASA has conducted 18 cooperative satellite and joint space probe projects. It has also flown 25 international experiments on its spacecraft. Since its early development of communications satellites, NASA has successfully orbited 12 spacecraft which form a system of global communications called Intelsat. 1975 will be the year of the Apollo/Soyuz Test Project in which the U. S. and the USSR will fly a joint manned mission.

Looking ahead, I think people will take even more for granted the exploration of space and all of the spinoffs from it than they do now. The regular flights of the Space Shuttle will contribute to this attitude.

It is difficult to forecast the benefits that will flow from research. We nearly always underestimate the future – scientists do this especially. I am sure we will be doing things that we've never even thought of.

1958 Space Act

(Continued from Page 1)

ing in to the U.S.S.R. when the Soviets on Nov. 3 launched another Sputnik with six times the payload of the first one. This one also carried a dog.

From the public and official concern arising from these events came the realization that the United States needed a space program built on a foundation of well-formulated basic policy and planning, effectively organized, adequately funded, and given high priorities.

The outcome was a civilian space agency, the National Aeronautics and Space Administration, whose policy was "that activities in space should be devoted to peaceful purposes for the benefit of all mankind."

When NASA marks its 15th birthday on the first of October, the U. S. will have orbiting the Earth every 90 minutes a 100-ton space station, Skylab.

By contrast, this nation's first satellite, Explorer 1, launched Jan. 31, 1958, weighed just a little over 30 pounds. For all its small size, Explorer 1 was scientifically productive. It discovered the Van Allen Belts, areas of high energy particles that surround the Earth.

Skylab manned by three crews of three astronauts each for periods of up to two months, is conducting solar astronomy, Earth resources, medical and other scientific and technical investigations.

Skylab is gaining in space new knowledge for the improvement of life on Earth. Its investigations and experiments will help develop new methods of learning about the Earth's environment and resources and new ways to evaluate programs directed at preserving or enhancing those resources throughout the world.

Ames women honored

Four outstanding Ames women will be honored at the First Annual Awards Luncheon for Distinguished Women on the Mid-Peninsula given by the Pacific Telephone and Telegraph Company in cooperation with the Girls' Club of the mid-Peninsula. The women are Dr. Joan Vernikos-Danellis, Chief of Human Studies Branch; Mrs. Phyllis J. Strawbridge, Technical Assistant to the Biomedical Research Division; Mrs. Sarah Dueker, Librarian in the Technical Information Division; and Mrs. Marcelline C. Smith, Manager of the Program Development Office.

The women are being recognized as having "contributed to the success and well-being of communities on the Mid-Peninsula." The luncheon will be held on Friday, September 28 at Rickeys Hyatt House in Palo Alto.

Challenging future for Ames

(Continued from Page 1)

In 1959 and 1960 when the Mercury and Apollo programs were being formulated by NASA, shapes for both Mercury and Apollo spacecraft were worked out at Ames. The Apollo command module shape flew in an Ames tunnel before there was an Apollo program. The other major unsolved problem of Moon flight was guidance, both during the mission, and at reentry. Again Ames researchers came up with many of the original theoretical answers.

Ames expertise in atmosphere entry and guidance is playing an important part in development of the next generation of manned spacecraft, the space shuttle which will fly into orbit, return to the atmosphere and land at a conventional airport.

In the past 15 years, Ames has contributed large amounts of supporting research to Mercury, Gemini, and Apollo programs in heat shield materials, guidance, and life-support. For Apollo, it has contributed a number of experiments such as the lunar surface magnetometer and lunar sample analysis.

Ames is NASA's lead center for basic research in life sciences, and has done extensive work tracing the origin of life, as well as in life-support systems for both aircraft and space flight. A notable discovery was the finding of life-related amino acids in a meteorite believed to come from the Asteroid Belt.

To strengthen its aircraft research, the Center has greatly expanded its flight simulation facilities which allow a pilot to "fly" a proposed aircraft still on the drawing boards. Ames is now a world leader in this field. Its Flight Simulator for Advanced Aircraft, also a national facility, is the most capable in existence. Ames simulation devices now number 25.

The Pioneer 6 to 9 interplanetary spacecraft have been put in solar orbit starting in 1965, and all four are continuing to return data on "solar weather", used by over 1,000 "customers".

Ames continues important aeronautical work in its 30-odd wind tunnels. These include the "40 X 80", the world's largest wind tunnel, now being modernized, and the 12-foot pressure tunnel which because of its low-turbulence and ability to simulate a range of flight conditions is most in demand among NASA tunnels.

For the future, Ames continues to emphasize short haul aeronautics in the belief that high flexibility in transport systems is necessary in an era of changing urban patterns.

Simulation of air flow with high speed computers such as the Illiac will allow "testing" of flight shapes in the computer before any metal is cut, or any wind tunnel testing is done. With Illiac, only "ideal" models will reach tunnel testing, since others will have been eliminated by computer.

Continuing atmosphere entry research, Ames will work on the Shuttle, on the proposed Pioneer-Venus spacecraft to enter Venus' atmosphere, and the Viking entry package to land on Mars.

Life sciences people will continue to look for life elsewhere in the universe and to adapt man to advanced aircraft and space flight systems. The Center hopes to extend its skills for low-cost management of advanced unmanned space flight systems to such missions as a Pioneer-Saturn, or even Uranus, perhaps, as well as to other flight projects.

Fly-by-wire is a fast-reacting computer-controlled electronic system that provides the exact amount of aircraft control response to soften the bumps, sways, and lurches of aircraft in turbulent air.

We expect the next generation aircraft, both civil and military, to incorporate "fly-by-wire" technology to gain the advantage of reduced aircraft weight and improved ride qualities in rough air.

For passenger travel up to 500 miles, the next decade will use aircraft that are custom designed for this particular purpose. We will see aircraft that look and fly conventionally when at altitude, but when operating in and around the airline terminal, these aircraft will fly at two-thirds the speed of present aircraft, will land and take off from shorter runways and along much steeper flight paths, and will be significantly cleaner and quieter. It is expected that their engine noise will be contained within the boundaries of the more conveniently located, smaller airports.

The technology to be incorporated in these short haul customized aircraft will come from NASA's wind tunnels and flight research activities. Here the concept is to combine the aircraft's propulsion system with its lifting system such that in terminal area operations the engine is contributing directly to the lifting capability of the wing. NASA research aircraft demonstrating this propulsive life scheme are now flying.

Additionally, U. S. Air Force contractors are currently designing two Advanced Medium STOL Transport prototype aircraft employing supercritical wing technology and propulsive-lift concepts derived from NASA technology.

In more recent years, NASA has been leading the way to quieter aircraft. Today's wide body transports are less noisy by a factor of 7 or 8 than are their predecessors, which we know as standard body aircraft. The NASA Mark I quiet engine demonstrated the technology for reducing noise.

NASA is continuing a program to reduce aircraft noise by modification of approach and landing flight paths and associated operational procedures. This effort focuses on the development of an avionics system, refinement of operational procedures, and demonstration of the operational feasibility of two-segment noise abatement flight paths for landing approaches which are acceptable to the airlines, pilots, and passengers.

Looking further beyond this decade we can expect a state of NASA-developed aeronautics technology making possible environmentally acceptable and economically viable long range transportation at supersonic speeds. At the end of this century, we can expect air transportation based on hydrogen fuel, the same liquid hydrogen used by NASA in the Saturn launch vehicle and the Apollo spacecraft.

15 Years Ago. .

by Roy P. Jackson
Assoc. Administrator

Fifteen years ago a new era began with the world's first commercial jet flights – an era that last year saw 450 million people travel by air, some 30 million of these crossing the oceans.

Today, U. S. civil aviation alone is an 18 billion dollar business, employing some 750 thousand Americans. Nearly all of the world's air commerce and passengers move in airplanes designed and built in the United States – a significant factor in the U. S. balance of trade.

And during these 15 years, the NASA researchers continued the work of their predecessor agency, the National Advisory Committee for Aeronautics, providing the technology advancements to preserve the U. S. position as world leader in civil and military aeronautics.

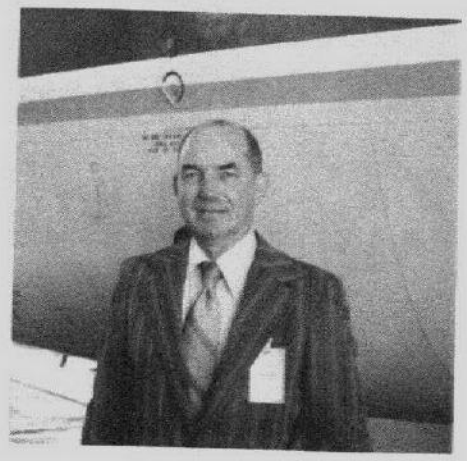
Military technology took a giant step forward in June 1959 when the joint NASA/USAF/USN X-15 rocket powered airplane made its first flight. The world's only manned aircraft capable of hypersonic flight, the X-15 flew to a peak altitude of 67 miles and a top speed of 4,520 miles per hour (Mach 6.7).

During the nearly 10 years of flight, the X-15 made major contributions to understanding the problems of manned flight in the atmosphere and in space, studied the effects of the extreme conditions of hypersonic flight on skin friction and thermal expansion, pioneered the use of ablative coatings, aided the efficient design of structures, and fulfilled its workhorse test-bed encompassing approximately 40 wide-ranging experiments.

Recent NASA contributions to military aeronautics include the single-pivot variable-sweep wing which allows efficient flight at both high and low speeds This concept was first applied to the Air Force F-111 and has since been adopted for the F-14 fighter and the B-1 bomber.

NASA has flown the free world's first digital fly-by-wire control aircraft. Here NASA has transferred technology from the space program to the airplane.

Special Achievement Awards



Bernard E. Cunningham, serving as manager of the Airworthiness Operations Group within Flight Operations for the past year, was recently granted a NASA Special Achievement Award by Dr. Hans Mark, Ames Director, and a check in the sum of $350.

The recommendation read that,

"Under Mr. Cunningham's direction, airworthiness, aircraft standards and guidelines have been defined and progressively improved throughout the year. He has combined the right amount of tact, understanding, initiative, judgement, and technical understanding with the necessary firmness that has resulted in a significant improvement in the airworthiness and flight safety posture of the Center's aircraft operations."

Based on outstanding performance as Technical Assistant to the Chief of Flight Operations, Jack McLaughlin received a NASA Special Achievement Award in August. McLaughlin received a letter from Dr. Hans Mark, Ames Director, and a check for $275.

McLaughlin was recognized for his unusual capability and perseverance in attacking the problems of coordination of all aircraft operations with user and support organizations. In so doing, he has reduced the workload on both management personnel and the research pilot. He quickly established himself within flight operations as a central coordinating point and, as such, was free to exercise initiative in developing procedures to improve aviation coordination and interface . . . and has shown outstanding capability in developing administrative and operating procedures.

Ames has a new Technology Utilization Officer. Horace F. Emerson was recently appointed Technology Utilization Officer by Dr. Hans Mark, Center Director. Emerson succeeds Bradford A. Evans who retired in June.

Emerson came to Ames directly after graduating from Stanford University in 1947. In 1947 Ames was part of the National Advisory Committee on Aeronautics (NACA) and was called Ames Aeronautical Laboratory. Emerson began his career in the 16-Foot High Speed Wind Tunnel. In those days the Laboratory was devoted to high speed aeronautics. When Ames became part of NASA in 1958 research attention changed somewhat. Scientists began working in astronautics and hypersonic aerodynamics.

With the new goals and aims of the Center, Emerson transferred to the 3.5-Foot Hypersonic Tunnel until he applied for a position in the Technology Utilization Office when it was formed in 1963. There he worked for George Edwards who was Ames first Technology Utilization Officer.

The new "TU" Officer, Emerson has set goals for the Office. One of the basic purposes for its existence is to see that the space technology developed within the Center is reported to industry and education in published form. In a recent interview Emerson states that, "I hope to increase the visibility of the Technology Utilization Office to industry and education. Last year we published 24% of the total Tech Briefs throughout NASA; this production came from employees who represent only 6% of the total number of people employed at NASA. I want to keep up the production. In order to do so I need the complete cooperation from individuals within the Center. The more people who know about our Office the more responsive they will be."

Emerson, a native Californian, enjoys camping, fishing, water skiing and traveling – "as long as I don't have to stay in hotels! I'm conditioned to "Mama's cuisine"!" He and his wife have two married children and one granddaughter . . . this leaves "Dad and Mom" rambling rattling around in their three bedroom Sunnyvale home now. Their son recently graduated from the University of Santa Clara's Law School ("He should be able to help keep me out of trouble now!") and their daughter has just landed an English teaching position in Portland, Oregon after taking her fifth year at Reed College.

Pioneer 11 update

The spacecraft that will give man his first close-up look at the planet Jupiter is breaking a lot of out-of-this-world records.

When Pioneer 10 swings by Jupiter December 3, it will set a speed record – 82,000 miles an hour – breaking its own earlier mark of 32,114 mph during launch March 2, 1972.

Pioneer 10 has traveled farther into space than any man-made object. It has journeyed beyond the orbit of Mars and traversed the asteroid belt. But it won't stop setting records at Jupiter. The planet's gravity and orbital motion will hurl Pioneer 10 beyond the solar system toward the red star Aldebaran in the constellation Taurus.

Pioneer 10 will cross the orbit of Pluto, outermost of the Sun's nine planets, in 1987. If Pioneer survives, it may still talk to us as it penetrates interstellar space.

A message from Pioneer would take more than three hours to reach Earth – a long, long-distance call.

Even at Jupiter's distance, a command sent to the spacecraft is 46 minutes en route, and a reply travels 46 minutes, so round-trip conversation between Ames Pioneer Mission Operations Center in California and Pioneer 10 at Jupiter takes more than one and a half hours – at the speed of light, 186,000 miles a second.

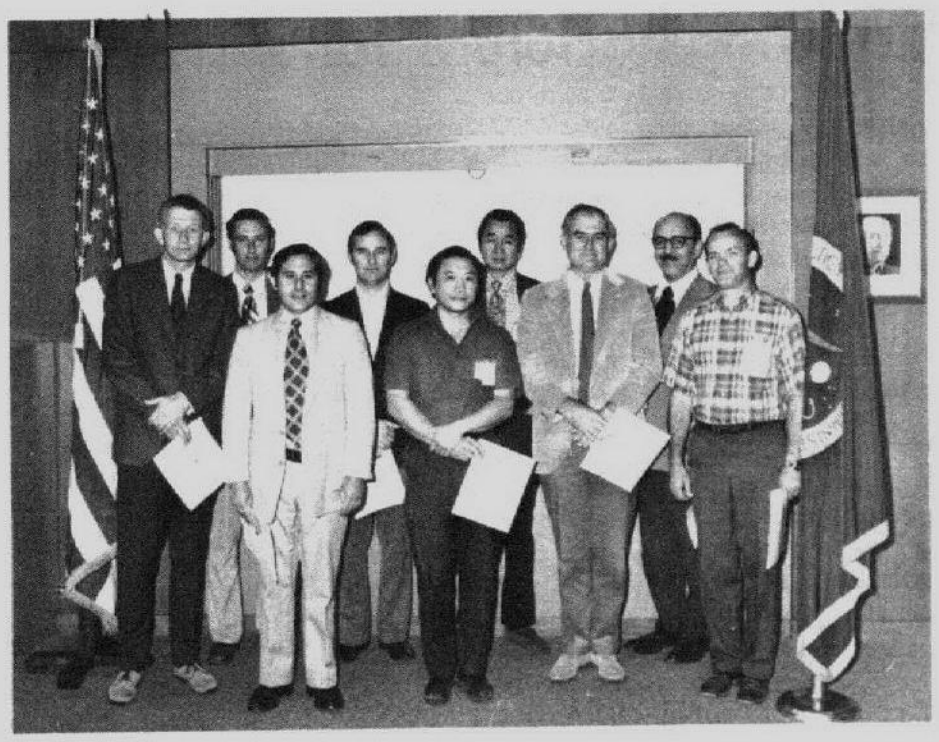
During its 620 million mile journey, the spacecraft has been tracked and controlled so precisely that it will arrive at Jupiter within less than a minute of the time predicted at launch, one minute in almost two years. This enables Pioneer to achieve a goal, once just a gleam in the eyes of scientists. Pioneer 10 will fly behind the orange and brightly reflective Jovian moon, Io, as it whirls about its master, telling experimenters whether Io has an atmosphere.

One record-setting phenomenon presents a serious hazard to Pioneer 10. Some scientist guess its massive radiation belts are a million times stronger than Earth's Van Allen belts.

Scientists fear these belts might fry Pioneer 10's electronics before it comes within 81,000 miles of the cloud tops – its closest approach. Some say electric charges could build up on Pioneer 10's surface and cause arcing that might destroy equipment.

But Project Manager Charles F. Hall comments "I believe Pioneer 10 will sail right in there, do its job and keep right on going in fine shape."

While the controllers have been working Pioneer 10 ever since launch, their busiest time will come between November 5, 1973, and January 3, 1974. But their task won't end then. They'll go right on gathering data from Pioneer 10's instruments as long as messages can be sent and received – at least until September 1979, 7.5 years after launch.



Tech Brief Awards

14 TECH BRIEF AWARDS . . . were presented to Ames employees September 6 in the Director's Committee Room. Tech Brief Awards are public announcements of new technology derived from the U. S. Space Program.

The recipients and their technology are (bottom row, l. to r.); Thomas B. Fryer, RFD, "Narrowband, Crystal-Controlled Biomedical Telemetry System;" Ronald F. Reinish, SSG, "Ultraviolet and Thermally Stable Polymer Compositions;" Layton Yee, Charles E. DeRose, PDS, and Warren C. Norman, RFTM, "Technique for Producing Wind-Tunnel Heat-Transfer Models;" (second row, l. to r.); Michael J. Anderson, STS, "Ultraviolet and Thermally Stable Polymer Compositions;" Theodore Wydeven, Jr., LTC, "Reverse-Osmosis Membranes by Plasma Polymerization;" Robert D. Lee, RFD, "Improved Ultrasonic Biomedical Measuring Apparatus;" and John Dimeff, R, "Vibrating Ribbon Bolometer – A Concept."

Award recipients not pictured and their technology are; Richard M. Westbrook, RFD, "Narrowband, Crystal-Controlled Biomedical Telemetry System;" Donald M. Oishi, SSO, "Technique for Producing Wind-Tunnel Heat-Transfer Models;" Jerry D. Christian, STS, "Accurate Measurement of Gas Volume by Liquid Displacement;" Hermilo R. Gloria, SSG, "Ultraviolet and Thermally Stable Polymer Compositions;" and John R. Hollahan, LTC, "Reverse-Osmosis Membranes by Plasma Polymerization."

Phase Certificates

PHASE CERTIFICATES . . . were presented to students in the NASA, Ames/Foothill Machine Tool and Fabrication Technology Work Experience Program on September 13 . The Certificates of Completion were given by Dr. John W. Dunn, District Superintendent of Foothill Community College. Recipients are (top row, l to r) Terry Bland, Kevin McCaffety, Andre Bogart, Davies Ackard, PaulKovalak; (second row) Jeff Sunzeri, Raul Guererro Jr., Larry Whiteside, Don Ayers, Bob Gordon; (third row) Ronald Kline, Garry Oxford, Davies Scimeca, Richard Nunez, Ken Allen; (one half row) Larin Bright, Paul Swartz, Jim Freel, Larry Butler; (front row) Dr. John Dunn, John Torres, Gene Barbara, John Cooke, Porfiro Tugangui .

Females as Shuttle passengers are under study

Clinical research in female physiology to develop selection criteria for women passengers in Space Shuttle missions began at Ames last week, as follow-on to similar studies on men conducted last year.

Twelve volunteers are joining a five-week experiment to find out how weightlessness and reentry Gs may affect the female body. After two weeks of orientation and preliminary medical studies, eight of the 12 nurses will simulate weightlessness by absolute bedrest and four will act as amblatory control subjects. After two weeks of immobility the eight women will be subjected to G forces expected when the Shuttle enters the atmosphere at the end of a mission. The last week is for recovery and final testing.

Because men and women are nature's only naturally upright two-footed animals, they have developed cardiovascular ability to keep their blood evenly distributed, despite the pull of gravity. Part of the experiment's objective is to see how well women can resist the tendency for blood to pool in the legs after a period without gravity and subsequent cardiovascular deconditioning already observed in male astronauts.

Another object is to determine female tolerance to the long period of low G forces which Shuttle reentry will create. The third objective is to measure specific physiological changes induced by the simulated weightlessness. These measurements are on biorhythms, body biochemistry, cardiovascular responses, and changes and effects of endocrine gland activity under the stress of simulated spaceflight. Much of the data on the females will be compared to similar data on males to determine the reaction differences.

Medical literature on many of test objectives for females is scarce or non-existent. The results and conclusions are therefore regarded vital as criteria for the selection of Shuttle passengers, both male and female.

The studies will be in a carefully controlled laboratory environment at the Human Research Facility for the bedrest and laboratory parts of the test. An Ames centrifuge is to be used for the G-tolerance testing. At both facilities, a variety of safety precautions and teams of physicians, technicians and consultants will monitor each test activity.

Several biomedical measuring devices developed at Ames are to be used in the experiment. One of these is a capsule that radios exact temperatures from inside the body to laboratory recording devices.

Nurse volunteers were called for because of their medical and flight training. It is not required that they be in prime physical condition like Mercury, Gemini and Apollo astronauts, but their general health is like that expected of Space Shuttle flight candidates.

The 12 subjects are all U. S. Air Force flight nurses, ten from Reserve units in the California area and other Western states. For the 5 weeks of the study they will be employed under a NASA contract. Two active duty nurses are under the direction of Col. Claire M. Garrecht, Command Nurse with the U.S.A.F. Tactical Air Command at Langley Air Force Base in Virginia and the 10 Reserve nurses under the direction of Col. Pearl Tucker, Special Assistant for Reserve Nursing Services Office of the Chief A.F.R., Washington, D. C.

Principal investigator for the experiments is Dr. Harold Sandler, Chief of the Biomedical Research Division at Ames. The project is under the overall direction of Dr. Charles Berry, Director for Life Sciences at NASA Headquarters.

Record dividend declared

The Board of Directors of the Moffett Field Employees Credit Union has declared the largest dividend in the history of the Credit Union according to John F. Pogue, President. John is a NASA employee working in Contract Management.

A dividend of 5½% per annum was voted by the Board after allowing for legal reserves required by law. The dividend is for the period from 1 January 1973 through 30 June 1973. The dividend information will appear on the third quarter statement of each Credit Union member.

The Credit Union carries Life Insurance on shareholder member accounts matching dollar for dollar up to $2000 on share accounts and similar coverage on all loan balances up to $10,000 on physically eligible Credit Union members. These insurance benefits are provided at no added cost to the membership.

At the present time the Board of Directors is engaged in setting up a very comprehensive promotional program and planning for the Credit Union's Annual Meeting to be held in the middle of March 1974. The Building Committee of the Credit Union is fully involved in plans and proposals for a new Credit Union structure which will encompass some 6000 square feet and be located in a new area being developed by the Naval Air Station as a shopping center complex.

Barbara Lee, Computer Technician

As an Ames employee for the past 15 years, Barbara Lee has found her work in computers to be "an enjoyable, satisfying and challenging experience." Barbara is a Computer Technician in the Administrative Applications Analysis Branch of the Computation Division.

As a computer technician Barbara has many responsibilities. She provides computer systems analysis support for administrative data processing applications in the areas of accounting, payroll, personnel, property, procurement – in short, Barbara's job includes computer systems analysis support in all areas except the scientific field.

"I really think of myself as being a 'Sherlock Holmes,'" says Barbara. "I track down problems we have on the computers and investigate their source (i.e., man-made or machine). I'm also a Jack of all Trades in my position and combine my experience as a keypunch operator with my data processing knowledge to perform my job well."

The computers Barbara works with include the IBM built 360 and 67; the Direct Coupling System (DCS) and the Honeywell. Her division is now in the process of converting from DCS to the larger 360 computer.

When asked what her main goal at Ames is, Barbara replied, "I wish to be as proficient at my job as I possibly can."

Barbara began her career at Ames as a keypunch operator. She learned keypunch operating at the Automation Institute in San Francisco before coming to work at Ames 15 years ago. The first 8 years of her work at Ames was spent as a keypunch operator.

Barbara became a computer technician – "A different kind than I am now!" – and learned to "set-up" for fiscal type jobs . . . the kind she now has control of. Barbara obtained her current position through the Ames Merit Promotion Plan. She states that she has never felt any discrimination at Ames as a woman or as a member of the Black minority. She has, on the other hand, has nothing but "pleasant experiences with warm and friendly co-worker associates."

Though a native of Cheyenne, Wyoming, Barbara truly enjoys her California life. She came to California in 1948 with her grandparents when her grandfather was transferred to the West Coast by his employer, United Airlines.

Barbara now has a family of her own. She and her husband live in San Mateo and have an 18 year old son and a new 7 month old daughter who is "an absolute doll!"

Hobbies and special interests of Barbara include sewing and travel. "I love to fly when traveling. I haven't done a great deal of it but I definitely prefer it to driving." She enjoys sports – "as a spectator," she continues, "not as a participator. I especially like to watch professional as well as college football, baseball and basketball."

astrogram

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Admin. Mgt. Building
Phone 965-5422

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Editor . . . . . Meredith Moore
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

Random badge checks

Random checks of identification for personnel seeking ingress to NAS, Moffett Field, are required by NASMF INST 5512.7B. Personnel *in uniform*, with a valid vehicle decal, will not normally ever be required to show identification. EFFECTIVE IMMEDIATELY, identification checks of all other personnel driving a vehicle with a valid decal, will only be made during random time blocks (10-15 minutes) each hour while "SHOW IDENTIFICATION" signs are visible. During these time periods, 100% of all personnel not in uniform will be required to show identification. When the "SHOW IDENTIFICATION" signs are covered, personnel not in uniform, with a valid decal, will not normally be required to produce identification.

Golf

An individual low-net tournament was held on September 8 at Laguna Seca Golf Ranch in Monterey. The winners of the four flights were:

1st Flight – R. Hedlund and T. Almojuela tied for 1st and 2nd; G. Lazzeroni and P. Kutler tied for 3rd and 4th.

2nd Flight – D. Humphrey, 1st; H. Mathews and V. Oyama tied for 2nd and 3rd.

3rd Flight – C. White, 1st; A. Lopez, 2nd; and F. Wirth, 3rd.

4th Flight – E. Levin, 1st; E. Watson, 2nd; and S. Johnson, 3rd.

The next regular tournaments will be held on September 29 at Santa Teresa; and on October 13 at Riverside. Anyone interested to play please contact Clark White, ext. 5438.

Combined Federal Campaign

Dr. Hans Mark, Ames Director, appointed Haroll Emerson, Chief of Technology Utilization Office, Chairman for this year's Combined Federal Campaign recently.

Give generously when your division captain visits you.

Ski Club

The Ames Ski Club will hold its first meeting of the '73-74 season, in the Cafeteria following work on Thursday, October 4. It will be a champagne kick-off meeting.

A tentative schedule of proposed trips will be finalized. New membership cards will be available.

Basketball

Anyone wishing to play in the All Ames Basketball League please contact Bruce Ganzler, x5169.

Speakers Bureau

*William Hurley, Regional Inspector, NASA Inspections Office, will discuss Skylab and the general overall NASA program to the Silver Eagles, a group of retired Navy personnel, on October 6, in Sunnyvale.

*On October 9, Maxwell Blanchard, Planetary Science and Applications Branch, will address the San Jose Engineers Club. His subject is: "Applications of Infrared to Current Community Problems".

*Garth Hull, Educational Programs Officer, will discuss the general spinoff benefits of the space program to the Century Club at its meeting in San Francisco on October 3, just two days after NASA's official "15th birthday" date of October 1. The Club, interestingly, is 150 years old.

*Mr. Hull also addressed the Rotary Club of Madera, on NASA's exploration of the planets, on September 25.

MAJOR JEFFREY H. GODFREY (3rd from left) . . . ,AMRDL, was promoted to his new rank during special ceremonies. (L to R): Paul F. Yaggy, Laboratory Director; Mrs. Godfrey, Major Godfrey, and Colonel Norman L. Robinson, Laboratory Deputy Director.

RECORDS ROUNDUP

OCTOBER 1 - 31

Want Ads

Transportation

FOR SALE

70 Merc. Monterey, 2-dr., hardtop, bronz, vinyl, match. interior & roof, auto., radio, P/B, P/S, A/C, $2000, 622 Grand Fir, Svyl.

1969 Pontiac GTO, A/T, P/S, P/B, R/H, 2 door H/T, Vinyl Top, $1200, or best offer, can refinance. 736-5285 or X5157.

Housing

FEMALE WANTED TO SHARE HOUSE WITH CAREER WOMAN: 3 bedroom, 2 bath house in Sunnyvale. Available Nov. 1. Fireplace, patio, yard, beautiful area. Close to Ames. Ref. required. Cost - open. 732-4823.

12X60, 1972 Skyline Mobile Home, 2-bdrm., 1-bath, skirts, awnings and landscaped. Exc. cond. in modern park. Phone: 262-1289 after 6 p.m.

All yr. vacation home rental, South Shore Lake Tahoe, 3 bdrm., 1½ bath, w/w carpet, fireplace, central heating, sun deck, $150/wk., $75/weekend. 523-7653.

Miscellaneous

FOR SALE:

Garrard, Type A automatic turntable, Heathkit stereo amplifier, both in excellent condition. $50. 365-0578.

Magnavox Stereo, $85.00. Silvertone Chord Organ w/ Amplifier, $85. Bar Bells Plastic Coated, $10. All exc. condition. 252-5596.

Interested in car pool from Menlo Park, vicinity Valparaiso and Hoover, 8-4:30; Bill Bousman, 322-5282.

Golf Clubs, Womens/Juniors, 3 woods, 9 irons, putter, bag, cart, balls. $65. 365-0578.

VTVM, HEATHKIT IM-18, fully assembled and tested, never used. $40. 948-2944.

Car carrying rack for two bicycles, $9. Call 657-4247 eves.

Chair, wing-back, skirted, Colonial. Exc. condition, $35. 257-7454.

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6 Beagle-Terrier puppies with pretty black and white markings. 6 Weeks old. Free to loving homes. R. Twarowski 279-1354.

THOROUGHBRED GREYHOUND PUPPIES, $50 948-3000 Eves.

GPO 984-178